

Tennessee Pollution Prevention Partnership Success Story



B&W Y-12
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Y-12 Modernizes for Energy Efficiency

The Member

The Y-12 National Security Complex is a high-precision manufacturing, assembly and inspection facility located near Oak Ridge, Tennessee. Operated by Babcock & Wilcox Technical Services Y-12 L.L.C. (B&W Y-12) for the National Nuclear Security Administration, Y-12 plays a vital role in the Department of Energy's (DOE) Nuclear Weapons Complex.

The Story

The Y-12 Complex is a sprawling collection of over 500 buildings covering over 800 acres. The majority of the buildings were constructed in the early 1940s during the Manhattan Project. The footprint is presently too large given the current and future mission of the site, and many of the facilities are nearing the end of their useful lives. In 2000, Y-12 embarked on a major initiative to improve efficiency of the Y-12 Complex through infrastructure reduction (IR). The initiative encompasses removal of aging buildings, and consolidation of activities into more energy efficient premises. The cumulative effect of these activities is a more streamlined, energy efficient and productive Complex.

In Fiscal Years (FY) 2005 and 2006, B&W Y-12 cleaned out, demolished and removed more than 45 structures. Many of the buildings were poorly insulated, and had inefficient lighting, window and door configurations and antiquated ventilation systems. The IR team integrated pollution prevention (P2) into all phases of the project to ensure that the large amount of IR-generated potential waste materials were cost effectively reused or recycled to the maximum extent.

The Success

Infrastructure reduction activities resulted in demolition and removal of more than 300,000 square feet (sq. ft.) of antiquated or inefficient building space in FY 2005 and FY 2006. This

resulted in reducing the natural gas and coal used primarily for steam generation and heating by 62% and 6%, respectively, compared to FY 2004. Electrical power use was also reduced by 8.1%. In FY 2006, the Y-12 Complex reduced the total energy use from more than 820 million kWh in FY 2004 to less than 730 million kWh, which is an 11.4% reduction and a continuation of the downward trend achieved since the onset of IR initiatives in 2000. This improved efficiency resulted in a savings of more than \$110,000 in combined energy costs versus FY 2004, despite an increase in unit energy costs for natural gas, coal and electricity.

In addition to improving energy efficiency, IR activities made land available for future redevelopment while maximizing the amount of materials that were recycled or reused rather than disposed as waste. IR recycling and reuse activities diverted more than 916 metric tons of waste from landfills in FY 2005 and FY 2006, for a cost avoidance of more than \$164,595.



The Pollution Prevented

In FY 2006, Infrastructure Reduction and Modernization activities reduced the energy used by the Y-12 Complex by more than 93 million kWh since FY 2004. In addition, IR projects reduced waste generated by more than 916 metric tons through recycling and reuse initiatives.

June 2007